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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/087,539 | 03/01/2002 | Henner W. Meinhold | 10001.001500 (NVLS 696) | 2254 |

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EXAMINER

VO, ANH T N

ART UNIT PAPER NUMBER

2861

DATE MAILED: 07/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
10/087,539

Applicant(s)
MEINHOLD ET AL.

Examiner
Anh T. N. Vo

Art Unit
2861



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on amendment filed on 04/16/2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 9-16, and 18-26 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-16, and 18-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 4 6) ☐ Other:

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FINAL REJECTION

Claims Rejections

Claim Rejections - 35 U.S.C. § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person will be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5, 6, 13, 15-16, 21, 23 -24, and 26 remain rejected under 35 U.S.C. 102 (b) as being anticipated by Car Michael et al. (US Pat. 3,852,768).

Note: The method steps are inherently taught in the apparatus device/limitations in the rejections as follow:

Car michael et al. disclose in Figures 1-5 a sensor for detecting ink droplets ejected from an ink jet printer comprising:

- a first plate (a) and a second plate (b) forming a capacitor, the first plate and the second plate being disposed to allow a droplet to pass between them (Figure 1);
- an amplifier (10) coupled to the first plate (a), the amplifier configured to generate an output signal indicative of a characteristic of the droplet (Figure 1);

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- a bias voltage coupled to the second plate (b) (Figure 1 and 4);
- wherein the amplifier (10) includes a charge sensitive amplifier (Figure 4);
- wherein the droplet is from an ink-jet print head configured to deposit material on a wafer (6) (Figure 1);
- wherein the characteristic includes drop velocity (column 3, lines 4-10).

Claims 1-2, 4, 6-7, 9-10, 13-14, 16, 18, 20 -22, and 24-25 remain rejected under 35 U.S.C. 102 (e) as being anticipated by Sarmast (US 2003/0011663A1).

Note: The method steps are inherently taught in the apparatus device/limitations in the rejections as follow:

Sarmast discloses in Figures 1-9 a sensor structure for detecting ink droplets ejected from an ink jet printer comprising:

- a first plate (160b) and a second plate (160a) forming a capacitor, the first plate and the second plate being disposed to allow a droplet (164) to pass between them (Figures 3-4);
- an amplifier (180) coupled to the first plate (160b), the amplifier configured to generate an output signal indicative of a characteristic of the droplet (Figure 4);
- a bias voltage (184) coupled to the second plate (160a) (Figure 4);
- wherein the amplifier (180) includes a charge sensitive amplifier (Figure 4);
- wherein the characteristic includes drop mass (Figures 3- 4);
- wherein the droplet (164) is from an ink-jet print head (142) configured to deposit material on a wafer (166) (Figure 6);

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- wherein the output signal is employed to calibrate a nozzle that dispensed the droplet (Figures 3-4);
- wherein the apparatus is included in an integrated circuit manufacturing equipment (102) (Figure 4);
- wherein the output signal is provided to a signal processing device (102) (Figure 4); and
- wherein the signal processing device (102) includes a computer (not shown) (Figure 4).

Claim Rejections - 35 U.S.C. § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior arts are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7, 11-12, 20 remain rejected under 35 U.S.C. 103 (a) as being unpatentable over Carmichael et al. (US Pat. 3,852,768) in view of Osborne (US Pat. 4,922,268).

Note: The method steps are inherently taught in the apparatus device/limitations in the rejections as follow:

Car michael et al. disclose the basic features of the claimed invention was stated above but do not disclose a sensor module located near a wafer processing chamber to allow a

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calibration of a print head that dispensed the droplet and the print head includes a plurality of nozzles.

However, Osborne discloses in Figures 4-5 an ink jet printer comprising:

- a sensor module (24) located near a wafer processing chamber to allow a calibration of a print head (16) that dispensed the droplet (Figure 4, column 2, lines 11-15);
- the print head (16) includes a plurality of nozzles (21).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the teaching of Osborne into the Carmichael et al. ink jet printer for the purpose of detecting an ink droplet to calibrate the displacement of the nozzle arrays thereby resulting in a high quality image being produced.

Response to Applicant's Arguments

The applicant argues that Carmichael, Sarmast and Osborne do not disclose sensing a droplet characteristic in an integrated circuit manufacturing equipment and "printhead configured to deposit material on a wafer" and anything relating integrated circuit fabrication. The arguments are not persuasive because the limitation "for sensing a characteristic of a droplet in an integrated circuit manufacturing equipment" recited in the preamble and "the droplet is from an ink-jet printhead configured to deposit material on a wafer" in claim 6 is considered to be an intended use which is not given any patentable weight since the printing devices of Carmichael, Sarmast and Osborne can be configured to deposit material on wafer or can be used in the

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manufacture. See *In re Casey*, 152 USPO 235 (CCA 1967) and *In re Otto*, 136 USPO 458, 459 (CCA 1963).

CONCLUSION

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Anh Vo whose telephone number is (703) 305-8194. The examiner can normally be reached on Tuesday to Friday from 8:00 A.M. to 5:00 P.M..

The fax number of this Group 2861 is (703) 305-3431 or 305-3432.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

A handwritten signature in black ink, appearing to read 'Anh T.N. Vo', with a long horizontal flourish extending to the right.

ANH T.N. VO
PRIMARY EXAMINER

June 28, 2003